# Between innovation and conservation 

The narrow path of UI design for the DSE

## The starting point: Edition Visualization Technology v. 1



Digital Vercelli Book


Codice Pelavicino Digitale


Lettere di Cise De Gresy

## Making EVT a general purpose tool

- New feature requests from other projects
- Natural evolution path: adding support for critical editions
- Problem no. 1: underlying framework less expandable and flexible than we thought
- Problem no. 2: the UI had to be re-designed to accommodate critical edition features
- Requiring flexibility and expandability


## Preparation phase

## - But before doing the UI redesign we did a thorough state of the art survey.

| Kritischer Text: Parzival 1.15-1.25 Ubersetzung >> <br> 1.15. diz vliegende bispel 1.16. ist tumben liuten gar ze snel; 1.17. sine mugens niht erdenken, 1.18. wand ez kan vor in wenken 1.19. rehte alsam ein schellec hase. 1.20. zin anderhalp an dem glase <br> 1.21. gelichet und des blinden troum, <br> Hs. D: 'gelichent' | Textzeugen <br> Hs. D: <br> St. Gallen, Stiftsbibliothek, Cod. 857 |  |  | [1.1760\| [1: 160$]$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | de amoueponderantibus lib |  |  |
|  |  |  |  |  |  |  |
|  |  |  | Arcimmats planorm acaue | , |  |  |
|  | DS. 5a <br> D 1.15. Diz fligende bîspel. <br> D 1.16. ist tumben livten gár zesnêl <br> D 1.17. sine mugens niht erdenken. <br> D 1.18. wand iz kan vor in wenken. <br> D 1.19. rehte alsam ein schelbich hase. |  |  | 2 Gravia ${ }^{12}$ item aequalia ${ }^{13}$, distantia inaequali ${ }^{14}$ suspensa, non 15 aequaliter $\frac{16}{}$ ponderare: sed id quod in longiori distantia pendet ${ }^{17}$, ad grave deferri ${ }^{18}$. |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  | 3 Iterm ${ }^{19}$, si gravibus ${ }^{22}$ secundum quandam ${ }^{21}$ distantiam ${ }^{22}$ aequeponderantibus ${ }^{23}$ alteri eorum adicicaur²4 aliquod grave 25 , tunc ea non aequaliter ${ }^{23}$ p ponderare, sed illud ad grave deferri27, cui quod ${ }^{228}$ grave 29 fuerit adiectum ${ }^{339}$. |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  | 4 Similiter etiam si ab altero corum auferatur grave ${ }^{31}$, om. 32 tunc non aequaliter ${ }^{33}$ ponderare, sed id aquo ${ }^{34}$ nil ${ }^{35}$ sit ablaturn, ad grave deferri ${ }^{36}$. |  |  |  |
| Dmnoc [l] LMOQ[R] TUV [V] W z Fir3 Firs |  |  |  |  |  |  |  |  |  |
| Variantenapparat: Parzival 1.15-1.25 <br> 1.15. <br> 1.15 nach 1.18-r: Q <br> diz] Daz Z Fr58, Diz D T, Diz Fr32, DJs m <br> vliegendel v\|*gende vs gende $M$, fliende $Q$, fligenden $Z$ |  |  | 5 Figuris planis similibus et aequalibus ${ }^{37}$ inter se coaptatis ${ }^{38}$, centra ${ }^{39}$ quoque ${ }^{40}$ gravitatis carum erunt inter se coaptata ${ }^{41}$. <br> 6 Si vero figurae similes fuerint ${ }^{42}$, non autem aequales ${ }^{43}$, centra gravitatis carum erunt ${ }^{44}$ similiter posita. <br> 7 Dicimus puncta similiter posita esse ad similes figuras, a quibus lineae rectae ${ }^{45}$, secundum ${ }^{46}$ angulos aequales ${ }^{47}$ <br>  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  | D m n o G I L M Q R T | T U V w z 5 Dreliger : <<< | \% $0^{\circ} \mathrm{m}$ | 4 fassungen |  |  |  |
| 1.16. <br> tumben] tümbe $U$ <br> garl om. U <br> zel om. m W <br> -noll | *D 453.01 Swer mich dâr von ê vrâgte <br> *D 453.02 unt dâr umbe mit mir bâgte, <br> *D 453.03 ob ichs im niht sagte, <br> *D 453.04 unprîs der dran bejagte. <br> *D 453.05 mich batz heln Kyot, <br> *D 453.06 wand im diu âventiure gebôt, <br> *D 453.07 daz es immer man gedæhte, <br> *D 453.08 ê ez diu âventiure bræhte <br> *D 453.09 mit worten an der mære gruoz, <br> *D 453.10 daz man dâr von doch sprechen muoz. | *m 453.01 wer mich dâ von vrâgete |  |  | *T 453.01 Swer mich dâr von ê vrâgete | $\frac{4}{412} 2 \underline{221} 2 \underline{23} 2256267270272$ |  |
|  |  | *m 453.02 und dâr umb mit mir bâgete, | *G 453.01 Swer mich drumbe vrâgete <br> *G 453.02 unt drumbe mit mir bâget, |  |  |  |  |
|  |  | *m 453.03 ob ich es ime niht ensagete, | *G 453.02 unt drumbe mit mir bâget, <br> *G 453.03 ob ichs im niht sagete, |  | *T 453.02 und drumbe mit mir bâgete, |  |  |
|  |  | *m 453.04 unprîs er dâr an bejagete. | *G 453.03 ob ichs im niht sagete, <br> *G 453.04 unbrîs er dran bejagete. |  | ${ }^{*}$ T 453.04 unpris er dran bejagete. |  |  |
|  |  | *m 453.05 mich bat ez heln kyot, |  |  | *T 453.05 mich bat ez heln Kyot |  |  |
|  |  | *m 453.06 wan im diu âventiure gebôt, |  |  | *T 453.06 wand in diu âventiure gebôt, |  |  |
|  |  | *m 453.07 daz es immer man gedæht, | *G 453.07 daz es immer man gedrahte, |  | *T 453.07 daz ers iemer man gedæhte, |  |  |
|  |  | *m 453.08 ê ez diu âventiure breht | *G 453.08 ê ez diu âventiure brehte |  | ${ }^{*} T 453.08$ ê ez diu âventiure brehte |  |  |
|  |  | *m 453.09 mit worten an der mær gruoz, | *G 453.09 mit worten an der mare gruoz, |  | *T 453.09 mit worten an der mare gruoz, |  |  |
|  |  | *m 453.10 daz man dâ von doch sprechen muoz. | *G 453.10 daz man dâr von nû sprechen muoz |  | *T 453.10 daz man dâ von doch sprechen muoz. |  |  |
|  | D 5 | mno | giolmz |  | tuvwer |  |  |
|  | Apparat 1 | Apparat 1 | Apparat 1 |  | Apparat 1 |  |  |
|  | 453.01 Initiale Fr5 <br> 453.11 Capitulumzeichen Fr5 | 453.01 Überschrift: Also parcifal gen treuriende dem einsidel kam m Also parcifal gon treurizende zü dem einsydel | 453.01 Uberschrif: Hie ist parcifal zv dem <br>  453.15 nititial el |  | 453.01 Überschrift: Awentewr wie partzifal bericht wart vmb den gral Q • Initiale V W . Großinitiale Q R |  |  |
|  | 453.02 dâr umbe mit mir ] mit mir dar vmbe Fr5 <br> 453.04 der ] er Fr5 <br> 453.07 es ] ers Fr5 <br> 453.08 ez ] [eh]: ez D • bræhte ] brahte Fr5 <br> 453.09 worten ] worte Fr 5 <br> 453.10 doch ] nv Fr5 <br> 453.11 Kyot ] Kyoth Fr5 - der ] ein Fr5 |  |  |  | Apparat 2 |  |  |
|  |  | 453.23 Überschrift: Also ein heiden genant <br> flegetanis ein kalp fúr sinen got an bettete <br> n (o) - Illustration o - Initiale n o | Apparat 2 |  | 453.01 Die Verse 453.1-502.30 fehlen U • Swer ] wEr W (Q R) • dâr von ] do vor Q • ê ] |  |  |
|  |  |  | 453.01 Swer ] $\div$ wer O Wer L M • drumbe ] da von ê $\mathrm{O}(\mathrm{LZ})$ da vone y $\mathrm{M} \bullet$ vrâgete ] vragit M |  |  |  |  |
|  |  |  |  |  | om. R 453.02 Vers 453.2 fehlt O • bâgete ] bogate R |  |  |
|  |  |  | 453.02 Vers 453.2 fehlt 0 - drumbe mit mir ] mit mir dar vmb I mit mir drumbe EL |  | bogate R <br> 453.03 ichs im ] ich ims $R$ • ensagete ] <br> sagte W Q R |  |  |

## Preparation phase (2)



|  |  |  | «40142>> |
| :---: | :---: | :---: | :---: |
| Metadati | 41 - lacopo Ammannati Piccolomini a Vespasiano. <br> Montegufoni, [1444-1448]. |  | Note |
| Sender:İcopo Ammanati Piccolomini |  |  |  |
| Place:Mortegutoni | Firerze, Biblioteca Medicae Laurenziana, Plut. 90 sup. 30, fi. 23v-24v. |  | $\frac{\text { Indice persone }}{\text { Indice codici }}$ |
| Date:1444-1448 | Mareme |  | Lettera 41 |
| Source:BMLF | c |  |  |
|  |  | Carisisime fratere et cetera. El Phedone dif Platonemi che mi | La data ossilla tra it 1444, quando |
| Collegamenti |  | manchami da scrivere: il perché, pigliando in voil la siurtà | l'Ammannati entrò in casa di Neri |
|  |  | usata, vi priegho charisimamente che adoperitat dif farmi | abbandond FFirenze per applicars al |
| Manuscrip:PIPuteo |  | sue, o almancho el Thimeol, sè trasatatao cioe per | sevizio del cardinal Domenico Copranica |
|  |  |  | a Roma (di cui Vespasiano ha tracciato il profilo nelle Vite, p. 152 [1, 159]). Né |
| Person:Iacopo_Piccolomini:Ammanati |  | peroché qua su mid dilecta non meno to scrivere criel | deve far difificotà lintestarione della |
| Resarce:Pemalink | tanto ve ne sarò più oblighato. E d | osel cosa chio cifo. Et uuanto piu presto me manderete, | lettera, ove lacopo risulta cardinale: |
| Resarceiremaluk | una casetta di Piero Acciaioli | İ et che forse vid dard questa lettera, perchés spesso i iviene | cui il codice fu scritto; anche il Perotti |
|  | a vedere. È giovane d'afidargli ogni quel che è seguito dello Studio, pe | Cosa. Pregovi mavisiat se chostà è alcuna cosad di uvovo, et |  |
| Tags - Entries | fussono. |  | nell'intestazione delle sue due lettere (lettera 9 e lettera 10), che pure sono del |
| Persone ${ }^{\text {© }}$ |  | Lfra queste montagnule dove el vento puì assai. Harete | 3 e 1454, cioè anteriori di almeno anni alla sua promozione |
|  |  | patientia, come noi. Le proferte del venire | allepiscopoto (cfr. Cognt, Vesposiano, p. |
| Codicim |  |  | 178, n. 1). |
| Lessicod |  | Salutate per mia parte Jacopo de' Rossi\& et Domenico di |  |
| Note |  | Carlos, et in primis il mio Ser Pellegrinos. Et a Goro da Legnaia\& mi rachomandate quanto potete. Né altro per | "acobus Cardinalis Papiensis" |




## State of the art survey - Results

- Conservatism in first DSEs
- Experiments in new UI paradigms
- Innovation/Experimentation positive and necessary, but entails problems with current DSEs
- Was the initial conservatism completely negative?

Or can we learn a lesson from it?

## EVT 1 - Before the refactoring

- Two main units:
- EVT Builder: chain of XSLT 2.0 transformations
- EVT Viewer: web application for the visualization into a browser of the results of the transformations and the interaction with them


EVT Builder


## EVT 2.0 - After the refactoring



- No more XSLT transformations.
- Direct parsing of the XML.


## EVT 2.0 - Designing the GUI

- Requirements analysis (features and functionalities)
- Modeling of every single component, highlighting their unique characteristics and modalities of mutual interaction
- Components
- the critical text
- the critical apparatus
- the list of variants
- the witnesses ...
- Functionalities
- visualization of textual variation
- critical apparatus dynamism
- witnesses collation
- filter of variants ...


## EVT 2.0 - The critical apparatus

## TRADITION

## INNOVATION

- To offer the scholar what he/she is used to see in a critical edition (lemma + significant variants + sigla of witness(es))
- Fully exploit of the potentialities of the electronic medium
- better access to content usually included in a traditional edition
- possibility to consult what is usually excluded (e.g. orthographic variants)


## EVT 2.0 - The critical apparatus (2)



HOW / WHERE
TO VISUALIZE IT?

## EVT 2.0 - The critical apparatus (3)

## SOLUTION 1 - Popup inline


$\sqrt{ }$ Suitable for very short content

Х Limited size
X It covers the text
X Difficult placement and management in fluid GUI

## EVT 2.0 - The critical apparatus (4)

SOLUTION 2 - Progressive opening of columns

$\sqrt{ }$ The logic function of the placement of the elements remains always clear

X Decrease of the available space where to place other elements
X General confusion in the interaction with the single variant reading

## EVT 2.0 - The critical apparatus (5)

SOLUTION 3 - Inline panel with internal tabs

$\sqrt{2}$
$\sqrt{2}$
Text is not covered
No additional frames
Virtual space quite large
Clear distinction between traditional apparatus and other information

Rapid access to additional information (critical notes, orthographic variants, ...)
as Interfaces

## EVT 2.0 - The critical apparatus (5)

## Doc 1 Critical $\sim$ in

## Liber I

## CAPUT 1

Magnus es, domine, et laudabilis valde: magna
magna $\underline{A}$ ] laudabilis $\underline{C}$
Critical Note Orthographic Variants More Info XML
This apparatus entry is an example using "rdgGrp" to group together variants. Here we have two groups, one presenting only spelling mistakes on the same reading as the lemma, while the second group has a different reading (with a spelling mistake for witness D).
virtus tua, et sapientiae tuae non est numerus. et laudare te vult homo, aliqua portio creaturae tuae - et homo circumferens mortalitem • suam, circumferens testimonium peccati sui et testimonium, quia superbis resistis: et tamen laudare te vult homo, aliqua • portio creaturae tuae. Tu excitas, ut laudare te delectet, quia fecisti nos ad te et inquietum est cor nostrum, donec requiescat in te. Da mihi , - domine, scire et intellegere, utrum sit prius invocare te an laudare te, et scire te prius sit an invocare te. sed quis te invocat nesciens te? Aliud enim pro alio - potest invocare nesciens. An potius invocaris , • ut sciaris? Quomodo

-     - 

autem invocabunt, in quem non crediderunt? Aut quomodo credent sine praedicante? - Et laudabunt dominum qui requirunt eum. Quaerentes enim inveniunt eum et invenientes laudabunt - eum. Quaeram te, domine, invocans te, et invocem te credens in te: praedicatus enim es nobis. Invocat te, domine,

Magnus es, domine, et laudabilis valde: magna
magna $\underline{\mathbf{A}}$ ] laudabilis $\underline{C}$
Critical Note Orthographic Variants More Info XML
This apparatus entry is an example using "rdgGrp" to group together variants. Here we have two groups, one presenting only spelling mistakes on the same reading as the lemma, while the second group has a different reading (with a spelling mistake for witness D ).

[^0]magma $\underline{B}$
maga $\underline{E}$
laudablis $\underline{D}$

## EVT 2.0 - The witnesses collation view

- Scalability problem with many witnesses to compare
- It is impossible to visualize everything at the same time, even on the screen.


## MAIN GOAL:

allow the visualization of as many witnesses as possible, always keeping a neat and clean interface.

## EVT 2.0 - The witnesses collation view (2)

## INITIAL SOLUTIONS



## EVT 2.0 - The witnesses collation view (3)

## FINAL SOLUTION



## EVT 2.0 - The witnesses collation view (4)

## FINAL SOLUTION - Responsiveness



| Doc\| |
| :---: |
| sesces cesct ances ses ances uectruescescs <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  $\qquad$ <br>  |



## EVT 2.0 - The witnesses collation view (5)


.
Filters $\mathbf{T}$ Heat Map $\boldsymbol{U}$ A
$\mathrm{A} \quad-2 \mathrm{r} \quad \mathrm{C}$
laudare te vult homo, aliquando portio creaturae tuae. Tu excitas, ut laudare te delectet, quia fecisti nos ad te et inquietum est cor nostrum, donec requiescat in te. Da mihi - domine, scire et intellegere, utrum sit prius invocare te an laudare te, et scire te prius sit an invocare te. sed quis te invocat nesciens te? Aliud enim pro alio potest invocare nesciens. An potius invocaris ${ }^{\circ}$ ut sciaris? In Quando autem invocabunt, in quem non crediderunt? Aut quomodo credent sine praedicante? Et laudabunt dominum qui requirunt eum. Quaerentes enim inveniunt eum et invenientes laudabunt • eum. Quaeram te, domine, invocans te, et invocem te credens in te: praedicatus enim es nobis. Invocat te, domine, fides mea, quam dedisti mihi, quam inspirasti mihi per humilitatem - filii tui, per ministerium - praedicatoris tui . -

## CAPUT 2

- Et quomodo invocabo deum meum, deum et dominum meum, quoniam utique inme ipsum eum invocabo, cum invocabo eum? Et quis locus est in me, quoveniat in me deus meus? quo deus veniat in me, deus, qui fecit caelum et terram? itane, domine deus meus, est quiquam in me, quod capiat te? An vero caelum et terra, quae fecisti et in quibus me fecisti, capiuntte? An quia
laudare te vult homo, aliqua portio creaturae tuae. Tu excitas, ut laudare te delectet, quia fecisti nos ad te et inquietum est cor nostrum, donec requiescat in te. Da nobis - domine, scire et intellegere, utrum sit prius invocare te an laudare te, et scire te prius sit an invocare te. sed quis te invocat nesciens te? Aliud enim [omit.] • potest invocare nesciens. An potius invocaris • ut sciaris? In Qui autem invocabunt, in quem non crediderunt? Aut quomodo credent sine praedicante? Et laudabunt dominum qui requirunt eum. Quaerentes enim inveniunt eum et invenientes laudabunt • eum. Quaeram te, domine, invocans te, et invocem te credens in te: praedicatus enim es nobis. Invocat te, domine, fides mea, quam dedisti mihi, quam inspirasti mihi per humilitatem • filii tui, per ministerium - praedicatoris tui. .

$$
-3 \mathrm{r}-
$$

## CAPUT 2

- Et quomodo invocabo deum meum, deum et dominum meum, quoniam utique inme ipsum eum invocabo, cum invocabo eum? Et quis locus est in me, quoveniat in me deus meus? quo deus veniat in me, deus, qui fecit caelum et terram? itane, domine deus meus, est quiquam in me,


## praedicatorum tuor

CAPUT 2

- Et quomodo invoc dominum meum, q eum invocabo, cum est in me, quoveniat veniat in me, deus, c itane, domine deus 1 quod capiat te? An , fecisti et in quibus $n$ sine te non esset $\cdot q$ est capiat te? quonia peto, ut venias in m me? - Non enim eg
implebis ? • Non en stabilem te faciunt, effunderis. Et cum e iaces, sed erigis nos, nos. sed quae imple omnia. An quia non omnia, partem tui c


## Filters $\mathbf{T}$

## EVT 2 - Main features

## Heat map

- Intensity of background color adjusted according to the number of significant variation recorded for the readings.


## Doc 1 Critial 1 目

government, it he shoura chance to meet with such.

- I left the woods for as good a reason as I went there. Perhaps it seemed to me that I had several more lives to live, and could not spare any more time for that one. It is remarkable how easily and insensibly we fall into a particular route, and make a beaten track for ourselves. I particular route, and make a beaten track for ourselves. I
had not lived there a week before my feet wore a path from my door to the pond-side; and though it is five or six years since I trod it, it is still quite distinct. It is true , I fear that others may have fallen into it, and so helped to keep it open. The surface of the earth is soft and impressible by the feet of men; and so with the paths which the mind travels. How worn and dusty, then, must be the highways of the world, how deep the ruts of tradition and conformity ! I did not wish to take a cabin passage, but rather to go before the mast and on the deck of the world, for there I could best see the moonlight amid the mountains. I do not wish to go below now .
- I learned thic at least hy mu exneriment - that if nne


## Doc 1 Critical - 国

government, il he shoura chance to meet winn such.

- I left the woods for as good a reason as I went there. Perhaps it seemed to me that I had several more lives to live, and could not spare any more time for that one. It is remarkable how easily and insensibly we fall into a particular route, and make a beaten track for ourselves. I had not lived there a week before my feet wore a path from my door to the pond-side; and though it is five or six years since I trod it, it is still quite distinct. It is true , I fear that others may have fallen into it , and so helped to keep it open. The surface of the earth is soft and impressible by the feet of men; and so with the paths which the mind travels. How worn and dusty, then, must be the highways of the world, how deep the ruts of tradition and conformity ! I did not wish to take a cabin passage, but rather to go before the mast and on the deck of the world, for there I could best see the moonlight amid the mountains. I do not wish to go below now
- I learned thic at least hy mu exneriment - that if one
<span class="reading__text" style="\{\{vm.backgroundColor()\}\}"></span>


## EVT 2 - Main features (2)

## Readings filter

- Select the typologies of readings to be highlighted in the text
- Possible selection values retrieved directly from the encoded file and possibly from some configuration values

```
possibleLemmaFilters : "resp, cert",
possibleVariantFilters : "type, cause, hand",
```


## EVT 2 - Main features (3)

## Bookmark

- Direct reference to a particular view or section of text


## Bookmark

Augustine. Confessiones [pseudo-edition for testing purpose]. Published by Marjorie Burghart.
<www.myedition.it/index.html\#/collation?d=doc_1\&e=critical\&ws=A@1r,B@2v\&app=a001>

$$
\begin{array}{r}
\text { \#/collation } \\
d=\text { doc_1 } \\
e=\text { critical } \\
w s=\text { A@1r,B@2v } \\
\text { app }=a 001
\end{array}
$$

View: witnesses collation
Current document: doc_1
Current edition level: critical
Witnesses visualized: \#A p.1r, \#B p.2v
Critical entry selected: a001

## Conclusion

- Choosing the reasonable compromise:
- Sometimes "intuitive" really means "familiar"
- Future developments
- Traditional critical apparatus layout as an option
- Porting of EVT 1 features into EVT 2
- Connecting all variant readings to the corresponding images: reliability as "you can see for yourself"

EVT web site: [http://evt.labcd.unipi.it/](http://evt.labcd.unipi.it/)
EVT 2 repository: [https://github.com/evt-project/evt-viewer](https://github.com/evt-project/evt-viewer)
Contact email: [evt.developers@gmail.com](mailto:evt.developers@gmail.com)


[^0]:    Magnus es, domine, et laudabilis valde: magna
    magna $\underline{A}$ ] laudabilis $\underline{C}$
    Critical Note Orthographic Variants More Info XML

